

1. A method, performed in a web-based environment on a computer system, of helping a user learn to implement an application, the method comprising:

- providing a predetermined plurality of applications;
- presenting an annotation page that includes one or more annotations descriptive of a source file of a predetermined application, each annotation including keyword links, annotation links, and detail of implementation of the application;
- permitting the user to select a link in an annotation;
- if the user selects a keyword link, presenting reference documentation associated with that keyword; and
- if the user selects an annotation link, presenting another annotation descriptive of another source file of a predetermined application.

2. The method of claim 1 further comprising performing a predetermined application and presenting one or more annotations descriptive of the performed application in coordination with performance of the predetermined application.

3. The method of claim 2 in which performing the predetermined application comprises receiving input from the user.

4. The method of claim 3 further comprising presenting another annotation page in coordination with performance of the predetermined application based on input from the user.

5. The method of claim 4 in which presenting another annotation page comprises:

- automatically and simultaneously calling an annotation request module including application, file, class and function names of a program unit for which detail should be displayed;
- mapping the request to an annotation; and
- informing a browser window in the web-based environment to display the other annotation page.

6. The method of claim 3 in which another annotation page is presented in coordination with performance of the predetermined application.

7. The method of claim 6 further comprising automatically generating a global table of contents comprising links to annotations by parsing structured links in web pages including annotation pages.

8. The method of claim 7 in which the links in the global table of contents are synchronized with presented annotations by highlighting links corresponding to a current annotation page.

9. The method of claim 8 in which the global table of contents is presented in a first frame of a first browser window, the annotation page is presented in a second frame of the first browser window, and the predetermined application is performed in a second browser window.

10. The method of claim 2 in which performing the predetermined application comprises launching a Java applet or application.

11. The method of claim 10 in which launching the Java applet or application comprises calling a Java application programming interface to ask a web browser to show the annotation page.

12. The method of claim 2 in which performing the predetermined application comprises downloading a hyper-text markup language page containing a Java applet.

13. The method of claim 2 in which performing the predetermined application comprises sending a common gateway interface request to a web server that launches the application in a window in the web-based environment.

1 14. The method of claim 13 in which the application returns a hyper-text markup
2 language page that includes JavaScript to ask a web browser to display the one or more
3 annotations.

1 15. The method of claim 2 in which the annotation page is presented in a first browser
2 window and the predetermined application is performed in a second browser window.

1 16. The method of claim 1 in which application implementation detail includes text
2 descriptive of the application, fragments of source code from the application, or both.

1 17. The method of claim 16 in which source code fragments are imported directly from
2 the source code file of the presented application.

1 18. The method of claim 1 further comprising automatically generating the annotation
2 page descriptive of the source code file of a predetermined application.

1 19. The method of claim 18 in which generating the annotation page comprises:
2 receiving a source code file that has embedded text marked up with instructions;
3 parsing the source code to determine a structure of the predetermined application; and
4 generating one or more annotations based on the predetermined application structure
5 and instructions.

1 20. The method of claim 19 in which generating the annotation page comprises:
2 generating one or more annotation links for navigating the annotations of the
3 predetermined application;
4 generating application implementation detail based on the embedded information; and
5 generating one or more keyword links for reference documentation.

1 21. The method of claim 20 in which generating the annotation page comprises
2 highlighting the keyword links and the annotation links in the annotation page.

22. The method of claim 19 further comprising automatically updating the annotation page descriptive of the source code file of the predetermined application when an updated source code file is received.

23. The method of claim 1 further comprising automatically generating a global table of contents by parsing the plurality of annotations for annotation links.

24. The method of claim 23 further comprising providing the global table of contents, in which the global table of contents comprises links to annotations.

25. The method of claim 23 further comprising generating a local table of contents, in which the local table of contents comprises links to web pages including annotation pages relating to an application.

26. The method of claim 25 further comprising providing the local table of contents when a local link in the global table of contents is selected.

27. The method of claim 1 in which the presented annotation page is descriptive of the performed application and the annotation page is presented in coordination with performance of the predetermined application.

28. The method of claim 1 further comprising:
generating a source code file stripped of annotation mark up, the generated source code file including source code of the application but not including text from the annotations;
presenting the stripped source code file; and
permitting the user to edit the stripped source code file.

29. A method, performed in a web-based environment on a computer system, of teaching user to implement an application, the method comprising:
providing a predetermined plurality of applications;

performing a predetermined application; and
 presenting an annotation page descriptive of a performed application in coordination with performance of the predetermined application, the annotation page including detail of application implementation and links to annotations and reference documentation.

30. A method, performed in a web-based environment on a computer system, of teaching a user to implement an application, the method comprising:

automatically assembling a global table of contents based on content in the environment, the global table of contents including a plurality of links to content within the environment;

providing the global table of contents;

generating a local table of contents that includes links to content that orient the user within a local topic; and

permitting the user to select links from the local table of contents to access local topics.

31. A method, performed in a web-based environment on a computer system, of teaching a user to implement an application, the method comprising:

providing a plurality of predefined interactive examples;

performing one or more of the predefined interactive examples in response to user selection;

presenting one or more annotations descriptive of the performed interactive example in coordination with performance of the predefined interactive example; and

allowing the user to selectively explore different aspects of the performed interactive example, the annotations, or both.

32. A web-based computer system for teaching a user to implement an application, the system comprising:

one or more predefined interactive applications, a predefined interactive application selectively executable by the user of the web-based computer system; and

5 an annotation page including one or more annotations, in which the annotation page
 6 describes a predefined interactive application, and the annotation page further includes:
 7 one or more links, and
 8 detail of implementation of the application,
 9 in which different annotations are automatically provided in the annotation page in
 10 response to selective execution of a predefined interactive application.

1 33. The system of claim 32 further comprising a utility through which the user can access
 2 source code associated with a predefined interactive application.

1 34. The system of claim 33 in which the utility enables the user to view or copy a
 2 predefined interactive application's source code.

1 35. The system of claim 32 in which detail of implementation of the application
 2 comprises text descriptive of the application, fragments of source code associated with the
 3 application, or both.

1 36. The system of claim 32 in which a link comprises a keyword link that provides the
 2 user with access to a body of reference documentation or an annotation link that provides the
 3 user with access to another annotation page.

1 37. The system of claim 32 further comprising a web-browser window that includes a
 2 framework that comprises:

- 1 a content frame that displays the annotations;
- 2 a framework applet that displays a navigation bar; and
- 3 a table of contents frame that displays a table of contents hierarchy of links.

1 38. The system of claim 37 in which the framework applet comprises a Java applet.

39. The system of claim 37 in which a Java Script automatically determines whether the framework is present in the web browser window, and if the framework is present, notifies the framework applet about the content in the framework.

40. The system of claim 39 in which the table of contents automatically highlights a link in the hierarchy based on the content in the framework.

41. The system of claim 40 in which the user accesses an annotation page by selecting a link in the table of contents hierarchy.

42. The system of claim 40 in which the user accesses an annotation page by interacting with the navigation bar.

43. The system of claim 40 in which the table of contents highlights the hierarchy based on an annotation page displayed in the content frame.

44. The system of claim 37 in which the table of contents is dismissible or resizable.

45. A web-based computer system for teaching a user to implement an application, the system comprising:

a web-browser window that includes a content frame, a framework applet, and a table of contents frame that displays a global table of contents hierarchy of links related to content in the content frame;

one or more annotations displayed in the content frame, each annotation describing a predefined interactive application and including links to other content; and

a table of contents window that displays a local table of contents hierarchy of links related to local content in the displayed annotation.